REMARKS

On an initial note, the Applicant wishes to thank the Examiner for pointing out the antecedent basis problem regarding claim 6. Claim 6 has been amended accordingly. The Applicant has also amended claims 1-6, 8, 15, 17, 18, and 20. The Applicant submits that these minor amendments and corrections herein are made without prejudice as to patentability, including the doctrine of equivalents, and no new matter has been added.

Claim 6 is Not Indefinite

The Examiner rejected Claim 6 under 35 U.S.C. 112, second paragraph, for the first time as being indefinite stating that "'the layers' (both recitations, line 2 and 4) are indefinite because the antecedent basis is unclear regarding 'layers' introduced in the claim, and 'layers' introduced in the parent claim." selecting is unclear because the selecting process is inferred." The Applicant has amended claim 6, accordingly. "Layers" referred to in claim 6 are the "layers" referred to in claim 1. The Applicant respectfully requests the Examiner withdraw the rejection.

Claims 1-20 are Nonobvious

The Examiner rejected Claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Wiener (U.S. Patent No. 5,524,679 A) in view of Benedetto et al. (U.S. Patent App. No. 20040221087 A1). Applicant respectfully traverses the rejection.

As noted previously, the Applicant's invention defined by the claims includes a multi-redundant inlaid wiring system for a vehicle, such as, for example, aircraft 11 (Figure 1). Aircraft 11 includes an outer structure 13, 15, having a composite fabrication assembly 59 (Figures 3 and 4) made of a plurality of layers 61, 65, of composite materials for connecting components 27, 39, adjacent the structure for sending and receiving transmittable information between the components 27, 39. The wiring system of the subject invention provides multiple pathways for the conveyance of electrical/optical signals throughout the wiring network (Figure 2) of the aircraft 11.

The wiring system includes a plurality of electrical or optical conductive conduits 25 placed between layers 61, 65, of the assembly. The layers 61, 65, are preferably of a fabric made of woven, high-strength fibers, impregnated with resin. A first and a second gateway 23, 29 preferably in the form of computer-controlled selector buses (Figure 2) and preferably also positioned between the layers 61, 65 (Figures 3 and 4), are connected to opposite ends of each of the conduits 25 for selecting at least one of the conduits 25 from a number of possible conduits 25 for communication between the gateways 23, 29. The gateways 23, 29, are connected to various components 27, 39, and controllers 17, 33, through wires 21, 37, 31, 35.

A gateway controller such as wiring computer or server 41 (Figure 2) is electrically or optically connected to at least one of the gateways 23, 29. In an embodiment of the present invention, wiring computer 41 is connected to at least one of the gateways 23, 29, through its own set of wires 43, 51, conduits 47, and gateways 45, 49 to control the gateway(s) 23, 29. That is, the wiring computer 41 can instruct at least one of the gateways 23, 29, to select one of the conduits 25, such as conduit 53 or 55, to carry transmittable information over the selected conduit 25 between controller-component combinations, such as: cockpit controller 17 to wing controller 33; or wing component 27 to cockpit component 39. *See* Application, page 8, lines 23-31. If wiring computer 41 determines that conduit 53 or 55 is damaged or otherwise unusable, the computer 41 can instruct gateways 23, 29, to shift the power or grounding functions to an alternate conduit 25, for example, conduit 57. *See* Application, page 7, lines 24-26. Likewise, if a data wire 47 is damaged, computer 41 can cause gateways 45, 49, to select an alternate data wire 47. *See* Application, page 7, lines 24-26.

Wiener describes a woven structure (Figure 1) in which optical fibers 12 and electrical conductors are woven into a single layer grid-like mat. Optical fibers 12 are positioned in channels in a warp direction between supporting strands 10, 11, woven in both warp and woof directions, respectively. *See* col. 2, line 52 to col. 3, line 26, and col. 4, line 61 to col. 5, line 11. The structure is manufactured using conventional weaving equipment by positioning both the optical fibers 12 and a non-optical warp strands 10 and then weaving the woof strands 11 into place. The fibers/optical conductors of the woven grid-like mat can then be coated with a coating 20 to hold the optical fibers 12 in place. *See* Wiener claim 2 and col. 5, lines 32-35. Wiener also teaches connectors having openings for accommodating the fiber optics and having

electrical contacts to couple with any electrical conductors woven within the grid-like mat. *See* col. 3, lines 55-65. Wiener further describes an interconnect device which combines an array of electrical "sources" and an array of optical "detectors." *See* col. 8, lines 29-40. Wiener teaches, without further description, that switching, addressing, and gating elements *may* be incorporated in the interconnect device. *See* col. 8, lines 52-55. Components 15 (Figure 7) are mounted atop or proximate to the optical fibers.

Wiener does not describe a plurality of nonwoven conductive conduits placed between layers of a fabrication assembly as featured in said claims, but instead teaches weaving the optical fibers 12 into a single layer grid-like mat (Figure 1) using a weaving process. Wiener also does not describe a gateway placed between layers of the fabrication assembly, but instead describes an interconnect (Figure 8) externally connected to the woven structure. Wiener further does not describe gateways or gateway means positioned to select one of the conduits. Nor does Wiener describe means for controlling selecting one of the conduits, or a server to instruct a gateway to do so.

Benedetto et al. describes an apparatus and method for eliminating formation of one-way connectivity loops caused by one-way connectivity faults between upstream and downstream Layer 2 switches in an enterprise computer network. *See* para. [0013] and [0039]. Layer 2 switches are typically used to provide connectivity within high bandwidth local area networks (LANs). The enterprise network is configured such that the L2 switches 204, 206, 208, and 212, connect to the next lower-level network L2 switch or end station device in the hierarchy, providing redundancy in order to maintain connectivity "in the event that a *switch* becomes inoperative." *See* para. [0041] (emphasis added). Layer 2 switches determine where to forward data packets based on the MAC or Layer 2 header of the data packets. Layer 2 switches extract the Layer 2 header from the packet, find a matching destination address in a forwarding table, and then transmit the data packet to the port associated with that destination address listed in the forwarding table. The forwarding table is populated through what can be described as a self-learning process whereby each arriving packet is used to update the entries in the table. That is, each arriving data packet is used to update the entries in a forwarding table to determine which links to use to forward the data packet. *See* para. [0068]-[0074]. In operation, as shown in Figure 3, a message from an end station 202 travels up the simple tree protocol (STP) tree 300

until it meets a common switch and then is forwarded down by the switch along the logical links to the station 202 to which it is addressed. *See* para. [0056].

Benedetto et al. does not disclose, teach, or suggest a plurality of nonwoven conductive conduits placed between layers of the assembly and a first and a second gateway connected to opposite ends of each conduit and positioned to select one of the conduits for communication between the gateways. Most notably, Benedetto et al. does not disclose, teach, or suggest controlling selecting one conduit from a plurality of conduits positioned between first and second network device pairs (e.g., L2 switches 204, 206, 208, 212, L3 routers 210, end stations 202). Benedetto et al. instead discloses connecting each network device to each next-hierarchal level network device to *bypass* the network device (switch) entirely if it becomes inoperative. That is, Benedetto et al. does not disclose, teach, or suggest selecting individual conductors or conduits between selected pairs of devices, gateways, or switches, to *maintain* a connection between the pair of devices, gateways, or switches, but instead teaches bypassing faulty devices. Benedetto et al. also does not disclose, teach, or suggest a computer-controlled selector bus or switch controlled by a wiring computer to select one of the conduits of a plurality of conduits positioned between pairs of buses or switches to *maintain* a connection therebetween nor such structure to maintain a connection between selector buses and the wiring computer itself.

Huang, introduced solely for the purposes of disclosing a "controller for selecting a conduit from among the plurality . . .," describes a control system architecture for a multi-component armament system. More specifically, Huang describes a plurality of armament component nodes (components) 62 connected to an intranet 60 in a hierarchical multi-tier arrangement. *See* para. [0044] and Figures 4 and 5. Communications over the intranet 60 are accomplished using a (TCP/IP) client/server communications scheme having a Web-like typography, as opposed to connecting each of the armament component nodes using a point-to-point communications scheme of a common or single bus architecture, such that communications can be passed among different components within the multiple tiers of the intranet until they arrive at their intended destination.

Benedetto et al. is not Analogous Art

Benedetto et al. is an inappropriate reference because it is not analogous art. The Examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *See* MPEP 2141.01(a).

One skilled in the art would not reference such patent in an attempt to build the Applicant's claimed invention. Benedetto et al. is not in the applicant's field of invention, i.e., redundant wiring systems inlaid in a composite body, but instead is in the field of networks of switches operating at layer 2 of an enterprise network and executing the spanning tree protocol. *See* para. [0002]. Further, Benedetto et al. is not reasonably pertinent to the particular problem with which the inventor was concerned. The problem addressed by Benedetto et al. was the need to eliminate loops formed as a result of one-way connectivity faults which arise when a particular port develops a faulty receiver or the port on the other end of a datalink develops a faulty transmitter whereby the particular port receives no bridge protocol data units (BPDU) packets, which cause the particular port to transition into "designated port role" and begin forwarding packets received. *See* para. [0010] and [0012]. Benedetto et al. solved the problem by Uplinkguard enabling ports of the L2 switches that the network manager desires to connect to communicate up the spanning tree to thus eliminate formation of loops caused by one-way connectivity faults. *See* para. [0016]. The Applicant was instead concerned with the problem of maintaining a conductive pathway between buses/gateways and correcting wiring faults due to a wiring failure. *See* Application page 3, lines 8-13.

Applicant, therefore, respectfully submits that all claims should be deemed allowed because this references is not analogous art.

No Prima Facie Case of Obviousness Was Established

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to

combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Applicant respectfully submits that the Examiner has not met each element of the *prima facie* case of obviousness.

No Suggestion or Motivation to Combine References

Regarding the first element of the *prima facie* case, neither of the references provide a suggestion or motivation to combine and none has been identified. Further, even if the references could somehow be combined or modified, this does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination, which it does not. *See* MPEP 2143.01.

Neither of the references explicitly provide a suggestion or motivation to combine. Further, the problems to be solved by each of the references and the Applicant also do not provide such motivation. Wiener faced the problem of kinking of fibers of a "laminated" (multilayer) structure during curing which was solved by weaving optical fibers into channels of a single layer woven mat strengthened with epoxy. *See* col. 2, lines 30-40, 52-54, and Figure 6. Wiener provides no teaching of how to form a structure having nonwoven conductive conduits placed between separate layers of composite material. In fact, Wiener effectively teaches away from Applicant's preferred embodiment due to its description of the undesirability of laminated (multilayer) structures. The Applicant was instead concerned with the problem of maintaining a conductive pathway between buses or gateways and correcting wiring faults due to a wiring failure. *See* Application page 3, lines 3-13. Further, according to the preferred embodiment of the present invention, as shown in Application Figure 3, rather than weave the conductors into a fabric layer, the Applicant solved its problem by positioning both conduits and buses or gateways between separate woven fabric layers.

Benedetto et al. faced the problem of loops formed as a result of one-way connectivity faults which arise when a particular port develops a faulty receiver or the port on the other end of

a datalink develops a faulty transmitter whereby the particular port receives no bridge protocol data units (BPDU) packets. *See* para. [0010] and [0012]. Benedetto et al. solved its problem by Uplinkguard enabling port switches the network manager desires to connect to communicate up the spanning tree, which eliminates formation of loops caused by one-way connectivity faults. *See* para. [0016]. Neither the problem faced by Benedetto et al. nor the method of solving its problem even remotely resembles the problem or solution of Wiener or of that of Applicant.

Huang et al. faced the problem of unpredictable time responses in a network having multiple communication paths between components. *See* para. [0013]. Huang et al. solved its problem by implementing weblike topography including a real-time scheduler. Neither the problem faced by Huang et al. nor the method of solving its problem resembles the problem or solution of Wiener, Benedetto et al., or that of Applicant.

Correspondingly, there is no showing of either an explicit or implicit suggestion or motivation to combine nor an explicit or implicit suggestion as to the desirability of the combination. Thus, this element is lacking. The Applicant respectfully requests the Examiner withdraw the rejection of the claims.

No Reasonable Expectation of Success

The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Though theoretically, Wiener could be combined with either Benedetto et al. or Huang et al. to produce a Benedetto et al. invention or a Huang et al. invention using a separate Wiener invention between network components of Benedetto et al. or Huang et al., respectively, this would not produce the Applicant's invention, but would instead produce either a Benedetto et al. or a Huang et al. invention. As will be described later, this combination still does not produce a network or a system having a control or controlling means to select individual conductive conduits from a plurality of nonwoven conductive conduits positioned between gateway or bus pairs, which responsive to failure or damage of a previously selected one of the plurality of conductive conduits, directs transmittable information over a selected conduit to thereby provide continued communication between the gateway or bus pairs. Thus, this element is lacking.

The References Do Not Teach or Suggest All Claim Limitations

Regarding a comparison of Wiener to the first element of each of the Applicant's independent claims, Wiener does not describe a plurality of conductive conduits placed *between* layers of a composite materials as featured in the claims, but instead teaches weaving the optical fibers into a single layer grid-like mat (Figure 1) using a weaving process. Thus, this element is lacking.

The Examiner states that "use of weaving to fabricate does not exclude its application to the claimed invention which recites 'a plurality of conductive conduits placed between layers' (claim 1)" and that "[t]his woven material is 'embedded into a rigid material, such as epoxy.'" *See* Paper No. 20050705, page 7, para. 2. Applicant has amended the independent claims to require nonwoven conductive conduits. The Examiner also states that "Wiener clearly discloses use of optical fibers (e.g., Title)." *See* Paper No. 20050705, page 8, para. 2. The Examiner further states that "[t]he fibers and the resin in which they are embedded are interpreted as [multiple] layers to anticipate the claimed invention." *See* Paper No. 20050705, page 8, para. 3. The Applicant respectfully submits that this is an incorrect interpretation. The Applicant acknowledges that Wiener forms a single layer woven structure including warp strands 10, woof strands 11, and optical fibers 12 coated/embedded within an elastomer or rubber epoxy 20. In fact, in an embodiment of Applicant's invention, both first and second fabric layers 61, 65, can have resin (e.g. epoxy) either pre-impregnated or applied through other processes. *See* Application, Figure 3 and page 7, lines 32-34. One skilled in the art, however, would understand that a fabric layer is still only a single fabric layer regardless of whether or not resin was applied to it. Neither Applicant's nor Wiener's resin form a new layer as eluded to by the Examiner. Adding resin (coating 20) to the fibers/optical conductors is simply part of forming the Wiener single layer weave. Further, any question as to whether Wiener teaches or suggests a multilayer structure vs. a single layer structure can be resolved by reviewing the background section, col. 2, lines 29-32, where Wiener teaches away from use of laminated (multilayer-type) structures. Specifically, Wiener teaches away from forming a structure by embedding optical fibers between multilayer structures due to "problems" with kinking during curing. *See* Wiener, col. 2, lines 16-19, and 29-32. The purpose of the coating 20 (and resultant structure formed therefrom) is not to

form a multiple layer structure, but to hold the optical, woof, and weave fibers, in place either rigidly or flexibly, depending upon the type of coating used. *See* Wiener, col. 5, lines 23-37. That is, Wiener apparently sought to solve perceived problems associated with laminated (multilayer) structures by weaving optical fibers into channels of a single layer woven mat strengthened with epoxy. *See* col. 2, lines 30-40, 52-54, and Figure 6. Thus, as neither Wiener, Benedetto et al., nor Huang et al. teach or suggest a plurality of nonwoven conductive conduits placed between layers of a composite material, each and every claim limitations is not taught or suggested.

Wiener further does not disclose, teach, or suggest gateways or gateway means positioned to *select* one of a plurality of conduits connected between first and second gateways, as featured in each of the independent claims. The Examiner states that Wiener discloses "first and second gateways (col. 8, lines 10-13) for selecting one of the conduits (e.g., 8, lines 16-19)." *See* paper 5, page 3. Actually, Wiener only describes active interconnects which may include "gating elements." *See* Wiener, col. 8, lines 47-54. No other description of the "gating elements" is provided. Assuming these gateway elements provide the typical functions of a network gateway, there is no teaching or suggestion they are configured to select one of the optical fibers 12 responsive to a controlling means determining a failure or damage to a previously selected optical fiber 12.

Neither Benedetto et al. nor Wiener disclose, teach, or suggest means for controlling selecting one of the conduits, as featured in independent claims 1 and 15, or a server positioned to instruct at least one of the gateways to select one of the conduits from the plurality of conduits, as featured in Claims 12 and 18. The Examiner concurs that Wiener does not teach or suggest such structure. *See* paper 20050705, page 3, para. 1. The Examiner, however, states that "Benedetto discloses controlling selecting one of the conduits from the plurality and directing transmittable information thereon (e.g., para. 56)." Benedetto et al. does not, however, teach or suggest such a means to perform such controlling function. The cited passage describes movement of a data packet along logical links between two end stations 202. Each arriving data packet is used by the respective L2 switch to update the entries in a forwarding table to determine which links to use to forward the data packet. See para. [0067]. Assuming that each of the inbetween-switch links such as, for example, link 252 (Figure 3) positioned between

switch 208A and 206A includes a plurality of conductive conduits, nothing in the reference describes means for controlling selecting one of the conduits from the plurality of conductive conduits, responsive to failure of or damage to a previously selected one of the plurality of conductive conduits, to direct transmittable information over the selected conduit to thereby provide continued communication between the first and the second gateway, as in independent claims 1 and 15 (as amended), or a server connected to at least one of the L2 switches and positioned to instruct the at least one of the L2 switches to select one of the conduits from the plurality of conductive conduits to carry transmittable information over the selected conduit, as an independent claim 18. Correspondingly, the cited references do not teach or suggest a structure having such means for controlling or having such a server to do so.

As neither Wiener nor Benedetto et al. teach or suggest a plurality of nonwoven conductive conduits placed *between* layers of composite material or the above described means/server for controlling, each and every claim limitation is not taught or suggested, thus, independent claims 1, 15, and 18 have been shown to be allowable and define over the cited references. Correspondingly, the dependent claims are also allowable. Applicant respectfully requests that the Examiner withdraw the rejection. Further, the dependent claims have independent novelty.

Regarding claim 2, neither Wiener nor Benedetto et al. disclose, teach, or suggest means for selecting alternative conductors within groups of component specific conductors between gateway pairs in response to failure of or damage to a preselected conductor. Benedetto et al. instead provides a logical tree having complex interconnections between different L2 switch levels within the tree hierarchy to bypass affected L2 network components. *See* para. [0044]. Please note, support for claim 2, as amended, can be found in the original claim and in page 7, lines 7-19 of the application.

Regarding claim 3, neither Wiener nor Benedetto et al. disclose, teach, or suggest a second plurality of nonwoven conductive conduits placed between the layers of the assembly, a third and a fourth gateway connected to opposite ends of each of the second plurality of conduits, whereby the third gateway is a computer-controlled selector bus connected to a wiring computer and positioned to select one of the conduits of the second plurality of conduits for direct communication between the third, fourth, and first gateways. The references further do not

disclose, teach, or suggest a wiring computer that controls selecting one of the conduits of the second plurality of conduits positioned between the third and the fourth gateways to maintain control of the first gateway.

Regarding claim 4, Wiener does not disclose, teach, or suggest a plurality of nonwoven conductive conduits placed between layers of an assembly, as discussed previously. As described with respect to the independent claims, the Wiener invention comprises optical fibers woven into channels of a single layer woven grid-like mat strengthened with epoxy. *See* col. 2, lines 30-40, and 52-54.

Regarding claim 5, Wiener does not disclose, teach, or suggest, a structure configured with a selector bus positioned to select one of the conduits from the plurality of nonwoven conductive conduits to receive information from an end component conduit connected to the respective selector bus.

Regarding claim 6, Wiener does not disclose, teach, or suggest gateways placed between layers of a multi-layer assembly. Wiener never describes a gateway other than with respect to the interconnect device having gating elements. Even if the interconnect device is equated to a gateway, as shown in Figure 8, the interconnect device's hardware 134 is connected to and not within the woven structure. Further, as shown in Figure 7 and as described in lines 38-41, an extended area of supporting material can be formed to allow external mounting of other components 15. Thus, any gateways connected to the optical fibers 12 would be positioned on the external surface of the single layer grid-like mat.

Regarding claim 7, Benedetto et al. does not disclose, teach, or suggest a programmable server for controlling selecting. Selecting a path between L2 switches is performed by "configuration messages," such as that shown in Figure 5, transmitted by the L2 switches themselves "to each other ... to allow them to calculate a spanning tree." *See* para. [0067].

Regarding claim 8, Benedetto et al. does not disclose, teach, or suggest a programmable server described in claim 7 further adapted for selecting any of a plurality of conduits for transmitting information between the first and the second gateways. The passage cited by the Examiner is included within a section describing that the configuration messages can perform the various listed functions (paras. [0069]-[0073]) used to form the spanning tree. Benedetto et al.

does not describe selecting individual conductors between the L2 switches, but rather, establishing routes between multiple levels of L2 switches.

Regarding claim 9, Benedetto et al. does not disclose, teach, or suggest the programmable server of claim 8 whereby selecting individual conduits from among a plurality of conduits connected between the same first and second gateways for transmission of information is based on a predetermined hierarchy. Benedetto et al. does not address selecting individual conduits from within a plurality of conduits between a pair of adjacent connecting L2 switches. The Examiner's reference, paras. [0069]-[0070], describes the early stages of establishing a spanning tree including selecting a "root L2 switch," and each of the other L2 switches calculating the shortest distance to the root L2 switch.

Regarding claim 10, Benedetto et al. does not disclose, teach, or suggest the programmable server of claim 9 whereby the selecting is based on the conduit of least resistance, which may not necessarily be the shortest path, but rather, the least resistant conductor. Benedetto et al. does not address selecting individual conduits from within a plurality of conduits between a pair of adjacent connecting L2 switches.

Regarding claim 11, Benedetto et al. does not disclose, teach, or suggest the programmable server of claim 9 whereby the selecting is based on the shortest conduit. Benedetto et al. does not address selecting individual conduits from within a plurality of conduits between a pair of adjacent connecting L2 switches.

Regarding claim 12, Benedetto et al. does not disclose, teach, or suggest the wiring network of claim 7 further including a conduit selector on each gateway. To build the spanning tree, routes are selected (para. [0071]) by having each L2 switch select a designated L2 switch from among a plurality of L2 switches connected to the local area network. However, selection of individual conductors between such designated L2 switch is not addressed in Benedetto et al.

Regarding claim 13, no central control center is described in the Wiener reference nor a plurality of components located remotely from such a central control center and controlled from such central control center. The reference provided by the Examiner, col. 8, lines 52-54, describes that "switching, addressing, and gating elements, as well as devices for clock recovery may be incorporated into active interconnect." Wiener does not describe such active interconnect as providing central control functions for a wiring network.

Regarding claims 14 and 16, please see the discussion in the following section. Regarding claim 15, please see the previous discussion regarding the independent claims.

Regarding claim 17, Benedetto et al. does not disclose, teach, or suggest the means for controlling selecting includes a computer. Selecting a path between L2 switches is performed by "configuration messages," such as that shown in Figure 5, transmitted by the L2 switches themselves "to each other ... to allow them to calculate a spanning tree." *See* para. [0067]. Further, Wiener does not disclose, teach, or suggest a plurality of nonwoven conductive conduits placed *between* layers of an assembly, as discussed previously.

Regarding independent claim 18, please see the previous discussion regarding the independent claims. Further, please note that one skilled in the art would not consider the L2 switch selected as a root L2 switch during construction of the spanning tree to be a server such as that described in claim 18. Further, even assuming that the communication pathways between L2 switch pairs comprise a plurality of conductors, such L2 switch does not instruct a gateway to select individual conduits from a plurality of conduits connected between L2 switch pairs. The function described in para. [0085] is that of selecting ports to form a spanning tree made up of L2 switches rather than selecting individual conductors from among a plurality of conductors connected to the same L2 switch port.

Regarding claim 19, Benedetto et al. does not disclose, teach, or suggest a server that determines the condition and usage of each of a plurality of conduits between either a gateway or a L2 switch pair. According to the paragraph cited by the Examiner, the described topography change notification message 600 is transmitted by one of the L2 switches upstream to its parent L2 switch and then to the root L2 switch to change the network topography. *See* para. [0084]-[0085]. Even assuming that the communication pathways between L2 switch pairs comprise a plurality of conductors, this does not disclose, teach, or suggest selecting individual conductors from within the plurality of conductors, but rather forming network pathways forming a spanning tree between end components and multiple levels of L2 switches.

Regarding claim 20, please see the discussion in the following section.

Claims 14, 16, and 20 are Nonobvious

The Examiner rejected Claims 14, 16, and 20 under 35 U.S.C. 103(a) as being unpatentable over Wiener (U.S. Patent No. 5,524,679 A) in view of Benedetto et al. (U.S. Patent App. No. 20040221087 A1) has applied in respective parent claims, further in view of Huang et al. (U.S. Patent App. No. 20020078138). Applicant respectfully traverses the rejection. Claims 14, 16, and 20 are either directly or indirectly dependent upon independent claims 1, 15, and 18, respectively, shown to be allowable, and thus, have also been shown to be allowable. The dependent claims, however, have independent novelty.

Regarding claims 14, 16, and 20, Huang et al. in combination with either Wiener or Benedetto et al. does not disclose, teach, or suggest a structure configured as follows: cockpit controller--first gateway means--plurality of conductors--second gateway means--external components.

Further regarding claim 20, Wiener does not disclose, teach, or suggest a plurality of nonwoven conductive conduits positioned between separate woven fabric layers, but rather describes optical fibers woven into channels of a single layer woven grid-like mat and held in position with epoxy. *See* col. 2, lines 30-40, and 52-54.

As neither Wiener, Benedetto et al., nor Huang et al., alone or in combination, teach or suggest each and every claim limitation, claims 14, 16, and 20 have been shown to be allowable over the cited references. Thus, Applicant respectfully requests that the Examiner withdraw the rejection.

Please note, in commenting upon the references and in order to facilitate a better understanding of the differences that are expressed in the claims, certain details of distinction between the references and the present invention have been mentioned, even though such differences do not appear in all of the claims. It is not intended by mentioning any such unclaimed distinctions or making any amendments herein to create any implied limitations in the claims. Not all of the distinctions between the prior art and Applicant's present invention have been made by Applicant. For the foregoing reasons, the Applicant reserves the right to submit additional evidence showing the distinctions between Applicant's invention to be novel and nonobvious in view of the prior art.

The foregoing remarks are intended to assist the Examiner in re-examining the application and in the course of explanation may employ shortened or more specific or variant descriptions of some of the claim language. Such descriptions are not intended to limit the scope of the claims; the actual claim language should be considered in each case. Furthermore, the remarks are not to be considered to be exhaustive of the facets of the invention that render it patentable, being only examples of certain advantageous features and differences which Applicant's attorney chooses to mention at this time.

CONCLUSION

In view of the amendments and remarks set forth herein, Applicant respectfully submits that the application is in condition for allowance and favorable action is respectfully requested. If the Examiner maintains the rejection, a telephone conference between the Examiner, Examiner's supervisor, and the undersigned attorney is respectfully requested.

Respectfully submitted,

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